Mar’s seeding project

Use of algae and iron eating organisms to create a complex system to stabilize dust and mars atmosphere

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This is a re

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Atmosphere

Recently there was a find of a type of algae growing in salt in the desert,

We know algae produces large amounts of oxygen and would act as a stabilizer in a dust rich environment, both would help create a livable environment and help create a stable area for further seeding. We can use a radioactive isotope in the algae to help tract the progress and growth of the algae,

We are not limited by technology as we were in the 1950's with saying that we would need to plant a

Series of types of algae in doing so they can and will feed off each other until one are the other has started to seed

The main phylogenetic groups of algae are

Diatoms: unicellular organisms of the kingdom protista, characterized by a silica shell of often intricate and beautiful sculpturing. Most diatoms exist singly, although some join to form colonies. They are usually yellowish or brownish, and are found in fresh- and saltwater, in moist soil, and on the moist surface of plants. Fresh-water and marine diatoms appear in greatest abundance early in the year as part of the phenomenon known as the spring bloom, which occurs as a result of the availability of both light and (winter-regenerated) nutrients. They reproduce asexually by cell division. When aquatic diatoms die they drop to the bottom, and the shells, not being subject to decay, collect in the ooze and eventually form the material known as diatomaceous earth. Diatoms can occur in a more compact form as a soft, chalky, lightweight rock, called diatomite. Diatomite is used as an insulating material against both heat and sound, in making dynamite and other explosives, and for filters, abrasives, and similar products. Diatoms have deposited most of the earth's limestone, and much petroleum is of diatom origin. The surface mud of a pond, ditch, or lagoon will almost always yield some diatoms.

Chlorophyta: division of the kingdom of protista consisting of the photosynthetic organism commonly known as green algae. The various species can be unicellular, multi-cellular, coenocytes' (having more than one nucleus in a cell), or colonial. Chlorophyta are largely aquatic or marine, a few types are terrestrial, occurring on moist soil, on the trunks of

trees, on moist rocks and in snow banks. Various species are highly specialized.

Euglenophyta: small phylum of the kingdom protista, consisting of mostly unicellular aquatic algae. Some euglenoids contain chloroplasts with the photosynthetic pigments; others are heterotrophic and can ingest or absorb their food. Reproduction occurs by longitudinal cell division. Most live in freshwater. The most characteristic genus is Euglena, common in ponds and pools, especially when the water has been polluted by runoff from fields or lawns on which fertilizers have been used. There are approximately 1000 species of euglenoids.

Dinoflagellata: large group of flagellate protistis. Some species are heterotrophic, but many are photosynthetic organisms containing chlorophyll. Various other pigments may mask the green of these chlorophylls. Other species are endosymbionts of marine animals and protozoa, and play an important part in the biology of coral reefs. Other Dinoflagellata are colorless predators on other protozoa, and a few forms are parasitic. Reproduction for most Dinoflagellata is asexual, through simple division of cells following mitosis. The Dinoflagellata are important constituents of plankton, and as such are primary food sources in warmer oceans. Many forms are phosphorescent; they are largely responsible for the phosphorescence visible at night in tropical seas. There are approximately 2000 species of Dinoflagellata.

Chrysophyta: large group of eukaryotes algae commonly called golden algae, found mostly in freshwater. Originally they were taken to include all such forms except the diatoms and multicellular brown algae, but since then they have been divided into several different groups based on pigmentation and cell structure. In many cryophytes the cell walls are composed of cellulose with large quantities of silica. Formerly classified as plants, they contain the photosynthetic pigments chlorophyll a and c. Under some circumstances they will reproduce sexually, but the usual form of reproduction is cell division.

Phaeophyta: phylum of the kingdom protista consisting of those organisms commonly called brown algae. Many of the world's familiar seaweeds are members of Phaeophyta. Like the Chrysophyta brown algae derive their color from the presence, in the cell chloroplasts, of several brownish carotenoid pigments, as fucoxathin. With only a few exceptions, brown algae are marine, growing in the colder oceans of the world, many in the tidal zone, where they are subjected to great stress from wave action; others grow in deep water. There are approximately 1500 species of Phaeophyta.

Rhodophyta: phylum of the kingdom protista consisting of the photosynthetic organisms commonly known as red algae. Members of the division have a characteristic clear red or purplish color imparted by accessory pigments called phycobilins. The red algae are multicellular and are characterized by a great deal of branching, but without differentiation into complex tissues. Most of the world's seaweeds belong to this group. Although red algae are found in all oceans, they are most common in warm-temperate and tropical climates, where they may occur at greater depths than any other photosynthetic organisms. Most of the coralline algae, which secrete calcium carbonate and play a major role in building reefs, belong here. Red algae are a traditional part of oriental cuisine. There are 4000 known marine species of red algae; a few species occur in freshwater.

Cyanobacteria: phylum of prokaryotic aquatic bacteria that obtain their energy through photosynthesis. They are often referred to as blue-green algae, even though it is now known that they are not related to any of the other algal groups, which are all eukaryotes. Cyanobacteria may be single-celled or colonial. Depending upon the species and environmental conditions, colonies may form filaments, sheets or even hollow balls. Some filamentous colonies show the ability to differentiate into three different cell types. Despite their name, different species can be red, brown, or yellow; blooms (dense masses on the surface of a body of water) of a red species are said to have given the Red Sea its name. There are two main sorts of pigmentation. Most Cyanobacteria contain chlorophyll a, together with various proteins called phycobilins, which give the cells a typical blue-green to grayish-brown color. A few genera, however, lack phycobilins and have chlorophyll b as well as a, giving them a bright green color.

Unlike bacteria, which are heterotrophic decomposers of the wastes and bodies of other organisms, Cyanobacteria contain the green pigment chlorophyll (as well as other pigments), which traps the energy of sunlight and enables these organisms to carry on photosynthesis. Cyanobacteria are thus autotrophic producers of their own food from simple raw materials. Nitrogen-fixing Cyanobacteria need only nitrogen and carbon dioxide to live: they are able to fix nitrogen gas, which cannot be absorbed by plants, into ammonia (NH3), nitrites (NO2) or nitrates (NO3), which can be absorbed by plants and converted to protein and nucleic acids.

Cyanobacteria are found in almost every conceivable habitat, from oceans to fresh water to bare rock to soil. Cyanobacteria produce the compounds responsible for earthy odors we detect in soil and some bodies of water. The greenish slime on the side of your damp flowerpot, the wall of your house or the trunk of that big tree is more likely to be Cyanobacteria than anything else. Cyanobacteria have even been found on the fur of polar bears, to which they impart a greenish tinge. In short, Cyanobacteria have no one habitat because you can find them almost anywhere in the world.

Please look at the drawings for an example of the delivery devise as well as the other documents to help support this work,

Also it would be best to deliver 2 packages on 2 different delivery devises; this would help in a successfully seed,

This experiment may only be a thought as I have no way of trying are proving it will work

however if it did it would help us all understand how and why the universe maybe the way it is, it would help us understand how we come to be, much more work needs to be done on this before it could possible become a working model and a workable and usable experiment

What really doe's mars have to offer ?

Large quantities of water are thought to be trapped underneath Mars's thick cryosphere. Radar data from *Mars Express* and the *Mars Reconnaissance Orbiter* have revealed the presence of large quantities of water ice both at the poles (July 2005)[1] and at mid-latitudes (November 2008).[1] The Phoenix Mars Lander directly sampled water ice in shallow Martian soil on July 31, 2008.A large release of liquid water is thought to have occurred when the Valles Marineris formed early in Mars's history, forming massive outflow channels. A smaller but more recent outflow may have occurred when the Cerberus Fossae chasm opened about 5 million years ago, leaving a supposed sea of frozen ice still visible today on the Elysium Planitia centered at Cerberus Palus. However, the morphology of this region may correspond to the ponding of lava flows, causing a superficial morphology similar to ice flows, which probably draped the terrain established by earlier massive floods of Athabasca Valles. Rough surface texture at decimeter (dm) scales, thermal inertia comparable to that of the Gusev plains, and hydro volcanic cones are consistent with the lava flow hypothesis. Furthermore, the stoichiometric mass fraction of water in this area to tens of centimeter depths is only ~4%, easily attributable to hydrated minerals and inconsistent with the presence of near-surface ice

atmosphere of Mars is relatively thin, and the atmospheric pressure on the surface varies from around 30 Pa (0.03 kPa) on Olympus Mons's peak to over 1155 Pa (1.155 kPa) in the depths of Hellas Planitia, with a mean surface level pressure of 600 Pa (0.6 kPa, or about 7-10 millibars, or 0.13 psi), compared to Earth's 101.3 kPa, and a total mass of 25 teratonnes, compared to Earth's 5148 teratonnes. However, the scale height of the atmosphere is about 11 km, somewhat higher than Earth's 7 km. The atmosphere on Mars consists of 95% carbon dioxide, 3% nitrogen, 1.6% argon, and contains traces of oxygen, water, and methane, for a mean molecular weight of 43.34 g/mole. The atmosphere is quite dusty, giving the Martian sky a tawny color when seen from the surface; data from the Mars Exploration Rovers indicates the suspended dust particles are roughly 1.5 micrometres across. ^ Lemmon et al., "Atmospheric Imaging Results from the Mars Exploration Rovers: Spirit and Opportunity

A deep implantation of live samples can stimulate growth back on mars helping to producing oxygen in return this will help stabilities the low atmospheric pressure creating a livable atmosphere this will help us create a working model to use on other planet.

What gives mars the red look?

In a simple answer iron, iron only turns red in the presents of water are humid places so it appears that water molecules have banded with the iron on mars and has produced rust are a type there of. In our algae seeding experiment we would also need to add an" iron **bacteria** "*Leptothrix ochracea*

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In a **Research Paper by**

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He states "Algae are rare within the bacterial blooms of *Leptothrix ochracea* that occur within streams possessing zones of iron and manganese oxide deposition. To assess the importance of *L. ochracea* and metal oxides for constraining algal abundance, and to elucidate the role these bacteria have in maintaining oxide deposition zones, we conducted field studies in a stream containing an extensive bloom of *L. ochracea.* Transplant experiments revealed a strong, inverse relationship between percent cover of Ferro-manganese oxides and the number of algal cells on colonized microscope slides. This negative relationship held whether substrata were colonized first with algae and then placed within the bloom, or were colonized with *L. ochracea* and then moved outside the bloom; in either case oxide cover was correlated with reduced numbers of algal cells. In another experiment, *Leptothrix*-bearing slides that had been sterilized with formalin had significantly more algae than did unsterilized controls. Ferro-manganese oxides were more prevalent on unsterilized slides, indicating the bacteria have an active role in maintaining Ferro-manganese oxides within the bloom. Active deposition of metal oxides may benefit bacteria by: 1) deterring algal colonization via allelopathic action, and 2) adsorbing phosphorus and depriving algae of this essential nutrient. Results from this study suggest that an antagonistic relationship exists between stream algae and *L. ochracea* and that both bacterial activity and the existence of Ferro-manganese oxides mediate the balance between these organisms in nature "

I have included the abstract in the attached files as well as other reading on the subject and the crude plans for a delivery devise.

I know this is not a complete work however due to my health I fell I need to forward this to the proper people

Copies have been sent to the white house, NASA and or others that may need the info.

The main question is “Can life eventually survives on mars?

I believe it can and I think you do to. To create are seed life on a place that has none would be a giant step for mankind and the sciences’ after seeding mars we could seed other places, planets and moons use them as bases and to help us better understand space as a whole. As we grow as a world we need to investigate the possibility that at some point we may need to relocate are find more resources there are 8 know planets in our solar system all with special and unique resources that we can use to create better homes and house as well give us a technology advances over what we consider first line are cutting edge. There are a few more papers dealing with how we can use space and planets to help us progress and maybe save our lives at some point.